ELAN DIGITAL SYSTEMS LTD.

LITTLE PARK FARM ROAD,
SEGENSWORTH WEST,
FAREHAM,
HANTS. PO15 5SJ.
TEL: (44) (0)1489 579799
FAX: (44) (0)1489 577516
e-mail: support@pccard.co.uk
website: http://www.pccard.co.uk

IC232 PC- CARD
USER'S GUIDE

All Trademarks are duly acknowledged.

REVISION HISTORY

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1. OVERVIEW

The IC232 card is an opto-isolated RS232 Serial card with the following features:

- Galvanically isolated RS232 port
- DOS, Windows 3.1x, 95, 98, 98SE, Me, NT4, 2000, XP, CE, PocketPC compatible using O.S. standard drivers
- Industry standard 16550 register set
- Transmission rates up to 115.2KBaud
- Full hardware modem control line support
- Standard PC IO port decode for COM1 to COMn
- "Any" IO port and interrupt decode option for best pnp flexibility
- ESD protected RS232 drivers
- Low power consumption
- Supplied with 300mm DB9-male terminated cable with "standard" COM port pin-out.

This guide aims to familiarise you with the way that the IC232 works and so will help you to maximise its performance in your application.

Elan will be happy to quote for either customisation of the IC232 if its exact specifications do not quite meet your needs, or to create complete application software.

2. ABOUT THE IC232

The IC232 card is an opto-isolated RS232 serial card using Elan's own 16550 compatible UART ASIC device, called the VPU16550. The serial data and control lines are buffered using ESD protected RS232 drivers.

Industry standard baud rates up to 115.2K baud are supported, together with 16-byte deep TX and RX FIFOs.

For further information please refer to the VPU16550 data sheet available from our website, http://www.pccard.co.uk

The RS232 port is galvanically isolated from the host PC. All the data and control signals cross from the non-isolated to the isolated side of the circuit via opto-couplers, and the isolated side is powered using a transformer coupled switch mode power supply. This means that any connections made to the signals on the DB9 connector are "floating" with respect to the host PC or laptop. The RS232 port works exactly the same as a non-isolated port in every respect.

The advantages of using isolated RS232 ports are well documented and include elimination of ground-loop related problems for long cable runs.

The metal case of the IC232 is connected to the host PC's ground and is therefore non-isolated.

3. INSTALLING THE IC232

3.1 DOS & Windows 3.1x

Operation in DOS or Windows 3.1 requires 3rd party Card and Socket Services drivers to be properly installed and configured. Follow your software vendor's instructions on how to do this.

The IC232 requires no extra drivers to operate in DOS. Insertion of the card should create a familiar "happy beep" as the host software configures the card a standard DOS COM port. Resource allocation and troubleshooting is all down to the 3rd party software and any issues that may arise during configuration of the IC232 should be addressed to the vendors of this software.

The IC232 has been tested with:

SystemSoft Cardware
Award Cardwizard

3.2 Windows 95, 98, 98SE, Me, NT4, 2000, XP

The "generic" serial drivers in these Operating Systems support the IC232. No extra driver software is needed but you will need to install Card Center Pro, or use the INF file that can be found on the first disk of the installation set.

Installing the supplied Card Center Pro software that comes with your product will copy the INF file into the Windows/INF folder. Windows will use this INF file to "recognise" the IC232 card. Alternatively, when Window's does a first-time search for the driver for the IC232 card, you can use Disk#1 from the CCP set.

3.3 Windows CE, PocketPC

There is no need to install any software for Windows CE or PocketPC. Simply insert the IC232 card and it will appear in a list when you go to set up a "Connection".

4. IC232 REGISTER INTERFACE

Full details of the IC232's register interface can be found in the VPU16550 data sheet, available at Elan's website

http://www.pccard.co.uk

5. HARDWARE SPECIFICATION

5.1 PINOUT

The IC232 is supplied with a 300mm long Type45 cable that terminates with a DB9 Male connector with female screwlocks (to match a standard COM port at the back of a PC)

The pin-out below applies to the IC232 DB9 male connector on the supplied cable.

DB9 COM PORT PINOUT (MALE)

PIN	NAME	FUNCTION
1	DCD	Data Carrier Detect input
2	RX	Receive Data input
3	TX	Transmit Data output
4	DTR	Data Terminal Ready output
5	GND	ISOLATED GROUND
6	DSR	Data Set Ready input
7	RTS	Request To Send output
8	CTS	Clear To Send input
9	RI	Ring Indicate input
SHELL	DB9 SHELL	not connected

5.2 ELECTRICAL

All figures quoted are typical parameters @ 25°C

RS232 SIGNALS: Typical output level ±5.5V

ISOLATATION: Max 75VACrms between any DB9 signal and host PC's
                          ground (0V). NB: higher rating can be achieved with
                          IC232R version (card-side connector replaced by direct
                          cable entry with gland…contact sales for more detail)

ESD PROTECTION: All RS232 signal lines on the IC232 card are protected
                          against electrostatic discharge (ESD)
                          - 15kv - human body model
                          - 8kv - IEC1000-4-2,contact discharge
                          - 15kv - IEC1000-4-2,air-gap discharge

UART CLOCK SPEED: UART CLOCK is 1.8432MHz ->115.2KBaud max

5.3 POWER CONSUMPTION

All figures quoted are typical parameters @ 25°C

VCC CURRENT: 100mA typical at 5V with no connection
                          165mA typical at 5V, 115KBaud TX & RX both ports

5.4 MECHANICAL

MASS: 13g typical.
FORM FACTOR: TypeII PC-Card

5.5 ENVIRONMENTAL

HUMIDITY: <80% non-condensing
TEMP: 0-50°C ambient